

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

BATTIATO et al.

Assignee: Liebel-Flarsheim Company

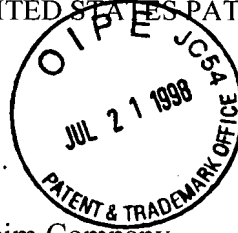
Serial No.: 08/753,288

Filed: November 22, 1996

For: MEDICAL FLUID INJECTOR

Art Unit:

Examiner:



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GROUP 3200

*Noted.*  
*S.F.*  
*August 4, 1998*

PROTEST UNDER 37 C.F.R. § 1.291(a)

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 C.F.R. § 1.291(a), Medrad, Inc. ("Protestor") hereby protests the above-identified patent application, which was filed by Liebel-Flarsheim Company ("Applicant") on November 22, 1996.

This Protest is based upon Protestor's expired U.S. Patent No. 4,006,736, which issued on February 8, 1977, to Kranys et al. ("the '736 patent"). A copy of the '736 patent, as well as a Form PTO-1449 listing the '736 patent thereon, is submitted herewith.

Before explaining the relevance of the '736 patent, a brief overview of the air detection system described by Applicant in the subject application is provided below to place the patentability thereof in proper perspective.

I. APPLICANT'S AIR DETECTION SYSTEM

Applicant's application describes an air detection system for detecting the presence of air in a syringe in advance of or during, for example, a contrast media injection for angiographic, CT, MR or ultrasound imaging procedures. If air is detected in a syringe, Applicant discloses that the air detection system can halt any prospective or ongoing fluid injection, preferably before the air is injected into the patient by the powered injector.

In the described embodiment, Applicant's air detection system, which is electrically connected directly to the control circuitry of the powered injector, includes a light source 126 and a light sensor 127 positioned adjacent to the exterior wall of a syringe 36.

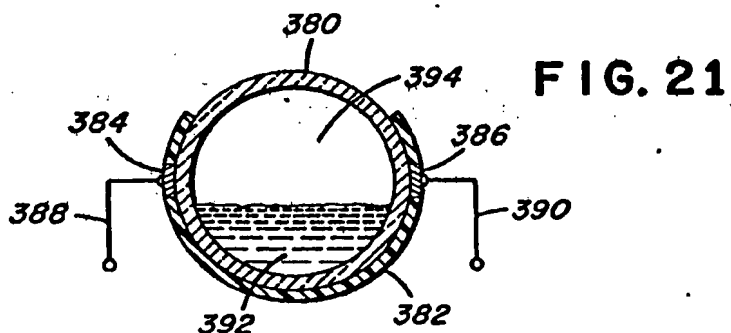
When the area of the syringe 36 coextensive with the light source 126 and the light sensor 127 (e.g., the syringe barrel or the syringe nozzle) is filled with contrast fluid, the light rays emitted from the light source 126 are directed to the light sensor 127, which produces a digital signal indicating the absence of air in the syringe. However, when the syringe 36 contains air, the light rays emitted from the light source 126 are refracted by the air and consequently directed away from the light sensor 127. When the light sensor 127 fails to receive the light rays from the light source 126, the light sensor 127 produces a digital signal indicating that air is present in the syringe and the control circuitry halts the operation of the powered injector.

## II. THE '736 PATENT

The '736 patent was issued on February 8, 1977, which is more than one year prior to the filing date of the subject application.

The '736 patent discloses an angiographic injector 10 for injecting contrast media into the vascular systems of patients. (Abstract.) The injector 10 includes a head portion 12, which houses the motor and drive components and carries removable syringes 380 containing contrast fluid. (Abstract.) As disclosed in the '736 patent, the injector 10 includes an air detection system for detecting the presence of air in the syringes mounted thereon. (Col. 16, lines 30-31; Figure 21.) The components and operation of an air detection system disclosed in the '736 patent are described below.

As shown in Figure 21 (provided below), an embodiment of the air detection system includes a detector strap 382 associated with or applied against the exterior wall of the syringe 380. (Col. 16, lines 32-33; Figure 21.) The detector strap 382 includes detector elements 384, 386, which are connected to, respectively, electrical leads 388, 390 to the injector 10. (Col. 16, lines 33-35; Figure 21.)



Like Applicant's air detection system, the detector elements comprise a light source or light emitting diode 384 and a light sensor or phototransistor 386 positioned adjacent to the exterior wall of the syringe 380. (Col. 16, lines 41-43.) Because the light transmitting characteristics of the syringe 380 change depending on whether the syringe 380 is filled with contrast media 392 or has an amount of air 394 present therein, the light source 384 and the light sensor 386 cooperate to determine whether air is present in the syringe 380.

For example, like Applicant's air detection system, when the syringe 380 is filled with contrast media 392, light rays emitted from the light source 384 are directed to the light sensor 386, which produces a signal indicating the absence of air in the syringe 380. On the other hand, if an amount of air 394 is present in the syringe 380, the light rays are refracted by the air 394 and an injector disarm signal is generated to prevent air injection. (Col. 16, lines 46-49.)

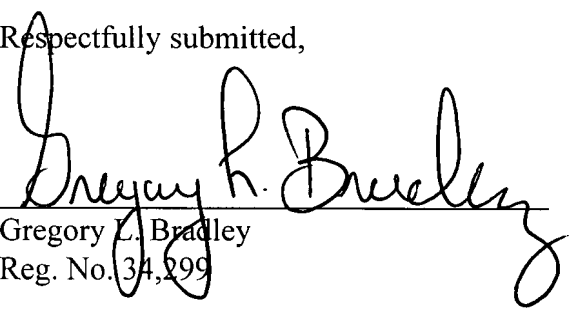
### III. CONCLUSION

It is evident from the above that Applicant's application generally discloses an air detection system at least very similar, if not identical, to an air detection system disclosed in the '736 patent. Consequently, in view of at least the '736 patent, Protestor submits

that Applicant is not entitled to patent protection for the air detection system disclosed in the subject application.

Respectfully submitted,

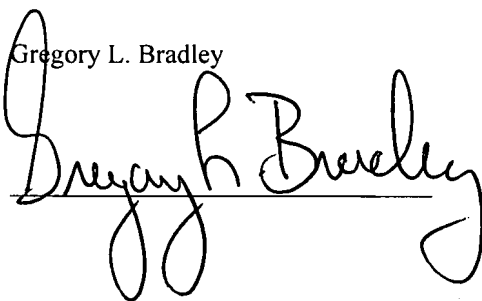
Dated: July 21, 1998

  
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CERTIFICATE OF EXPRESS MAILING

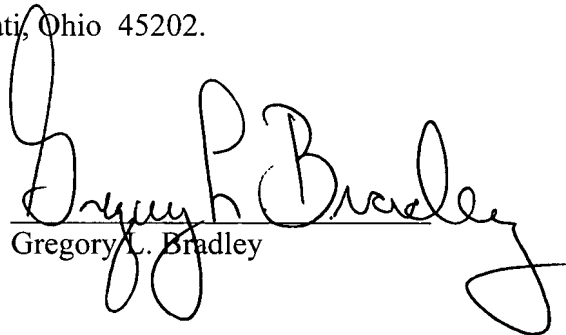
"Express Mail" Mailing Label No. EM586573642US. Date of Deposit: July 21, 1998. I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service "Express Mail Post Office To Addressee" Service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Gregory L. Bradley  




CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of this Protest Under 37 C.F.R. §1.291(a), and any accompanying papers, was served by first-class, postage pre-paid, U.S. mail on even date herewith, addressed to Thomas W. Humphrey, Wood Herron & Evans, L.L.P., 2700 Carew Tower, Cincinnati, Ohio 45202.

  
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Gregory L. Bradley